ORIGINAL RESEARCH

# Descriptive Cross-sectional Study to Explore the Morbidity Pattern among admitted Patients in Tertiary Healthcare Institute of Rural Tribal Zone in North Maharashtra, India

Ashwini M. Deshmukh[1], Shekhar B. Padhyegurjar[2], Jagdish D. Powar[2], Manasi S. Padhyegurjar[2], Amit P. Gujarathi[2]

## Abstract

**Introduction:** Morbidity pattern of tertiary health care institute located in rural tribal zone is different than other institutes. This study was planned to explore this morbidity pattern.

**Aim and objectives:** To explore the morbidity pattern among admitted patients in tertiary health care institute: 1) To estimate proportions of different morbidities among admitted patients in tertiary health care institute 2) To estimate proportions of different co-morbidities among admitted patients in tertiary health care institute.

**Methods:** The study was carried out in tertiary health care institute in rural tribal zone of Maharashtra. The study was based on the records available in Medical Records Section. The records duration was from January 2022 to March 2023 i.e., 15 months. The sample size was 250, with the help of structured proforma, the data from each discharge sheet was meticulously collected and subsequently fed into MS Excel sheet and analyzed through Epi-Info software

**Results:** Females were 113 out of 250 (45%) and those who were below 40 years were 113 out of 250 (45%) with the mean age of 42.23 years (+/-2.72 years). The majority of patients had single morbidity i.e. 230/ 250 (92%) and 133 (53.2%) patients had no co-morbidities. 54 (21.6%) were hypertensives and 33 (13.2%) were diabetics. 5 (2%) had ischemic heart disease and 4 (1.6%) had bronchial asthma. 2 (0.8%) had thyroid disease and 26 (10.4%) had chronic kidney disease 34 (13.60%) had some type of malignancy.

**Conclusion:** It was observed that the vast majority (92%) of admitted patients had single morbidity and majority (53.2%) of patients had no co-morbidity in the tertiary care institute.

**Keywords:** Morbidities, Co-morbidities, Tertiary Health Care Institute

*Journal of Research in Medical and Interpathy Sciences. 2(2);2024*

## Introduction

Tertiary health care institutes are peculiar institutes generally having patients with morbidity patterns different than primary and secondary health care institutes. Generally, patients are referred from primary and secondary health care institutes to tertiary health care institutes. Some patients with severe complaints and morbidities approach directly to such institutes. So generally patients with multiple morbidities and co-morbidities are found in tertiary health care institutes. However, morbidity statistics tend to overlook a large number of in apparent and subclinical conditions.[1] However morbidity pattern of tertiary health care institutes located in rural tribal zone is different than other institutes due to the very location of such institutes as well as the catchment area with lower socio-economic background people are more likely to approach these institutes due to the vicinity. This study was planned to explore this morbidity pattern and understand broad morbidity pattern and plan hospital services, accordingly.

## Aim and Objectives

**Aim:** To explore the morbidity pattern among admitted patients in tertiary health care institute.

[1]Consultant Preventive Oncology, SMBT Hospital, Dhamanagon, Nashik, MS, India

[2]Department of Community Medicine, SMBT, IMSRC, Nashik, MS, India.

**Corresponding Author:** Shekhar B. Padhyegurjar (**Email:** padhyegurjarshekhar@gmail.com)

**Conflict of Interest:** None

**Source of Funding:** None

**How to cite:** Deshmukh AM, Padhyegurjar SB, Powar JD, Padhyegurjar MS, Gujarathi AP. Descriptive Cross-sectional Study to Explore the Morbidity Pattern among admitted Patients in Tertiary Healthcare Institute of Rural Tribal Zone in North Maharashtra, India. Journal of Research in Medical and Interpathy Sciences. 2024;2(2):54–57

**Objectives:** 1) To estimate proportions of different morbidities among admitted patients in tertiary health care institute.

2) To estimate proportions of different co-morbidities among admitted patients in tertiary health care institute.

## Methods

The study was carried out in tertiary health care institute in rural tribal zone of Section. Duration from which records were taken was from January 2022 to March 2023, i.e., 15 months. One random set of 5 months was selected randomly from 3 sets of 5 months. The sample size estimated by using a prevalence formula with proportion of morbidities as 82.3%[2] and by taking error of 5% on either side of this prevalence.

$$n = \left\{\left[Z^2_{1-\alpha/2}PQ\right] \div e^2\right\}^3$$

Where $Z_{1-\alpha/2} = 1.96$ $(P = 0.05)$

$$P = 82.3\%^2, Q = (100 - P) = 17.7\%$$

$$E = 5\% \text{ on either side of } P$$

The estimated sample size was 223.84 and the same was rounded to 250.

The hospital authorities were provided with a letter stating privacy and confidentiality of the data and were given undertaking that the data would be used for only academic and research purpose. The study protocol was presented by principal investigator to the Institutional Ethics Committee and was subsequently approved after discussion.

Representation from major and minor departments was considered as per their weightage. With the help in structured proforma, the data from each discharge sheet was meticulously collected and subsequently fed into MS Excel sheet and analyzed through Epi-Info software after importing from excel sheet.

## Results

Table 1 explains that the higher proportion of male gender was found in the sample (55%) as compared to female gender (45%).

**Table 1:** Gender-wise distribution of participants.

| Gender | Frequency | Proportion (%) |
|---|---|---|
| Female | 113 | 45 |
| Male | 137 | 55 |
| **Total** | **250** | **100** |

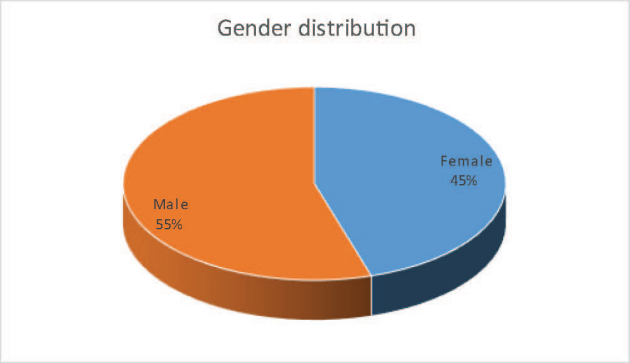


**Figure 1:** Pie chart of gender distribution.

**Table 2:** Age group-wise distribution of participants.

| Age group | Frequency | Proportion (%) |
|---|---|---|
| Below 40 years | 113 | 45 |
| Equal and above 40 years | 137 | 55 |
| **Total** | **250** | **100** |

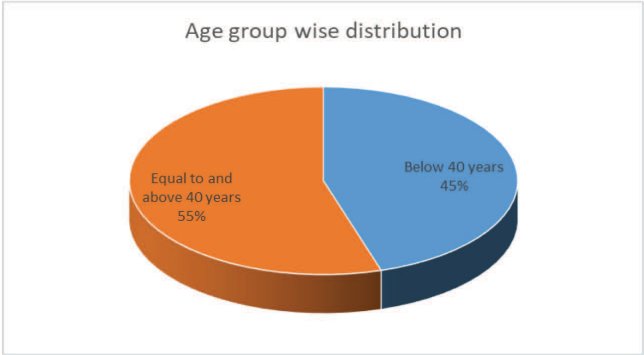


**Figure 2:** Pie chart of age group wise distribution.

Table 2 presents higher proportion of equal and above 40 years (55%) are observed as compared to below 40 years (45%). The arithmetic mean of age is 42.23 years with a range of 0.003 to 84.5 years and median age is 44.75 years so age distribution is near to normal. The standard deviation of the age is 21.93 years and 95% confidence interval is 39.51 to 44.95 years.

The arithmetic mean of the age is 42.23 years with the range of 0.003 to 84.5 years and median age is 44.75 years so age distribution is near to normal. The standard deviation of the age is 21.93 years and 95% confidence interval is 39.51 to 44.95 years.

**Table 3**: Department wise distribution of participants.

| Diagnosis | Frequency | Proportion (%) |
|---|---|---|
| Single morbidity | 230 | 92.00 |
| Two or more morbidities | 17 | 6.80 |
| Only comorbidity/ies | 3 | 1.20 |
| Total | 250 | 100.00 |

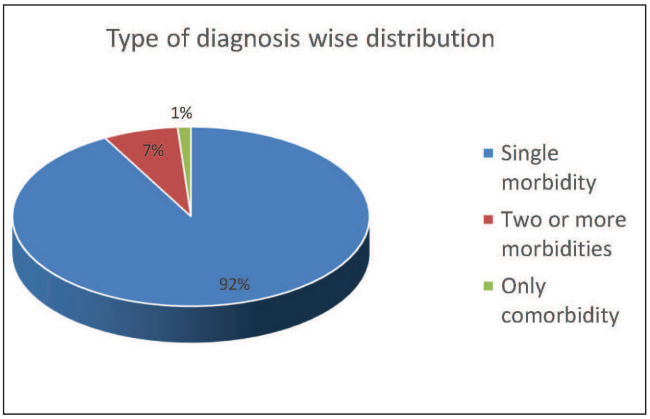


**Figure 3:** Pie chart of diagnosis as per morbidity-wise distribution.

**Table 4:** Number of comorbidities-wise distribution of participants.

| Number of co-morbidities | Frequency | Proportion (%) |
|---|---|---|
| No co-morbidity | 133 | 53.20 |
| 1 co-morbidity | 66 | 26.40 |
| 2 co-morbidities | 42 | 16.80 |
| 3 co-morbidities | 7 | 2.80 |
| 4 co-morbidities | 2 | 0.80 |
| **Total** | **250** | **100.00** |

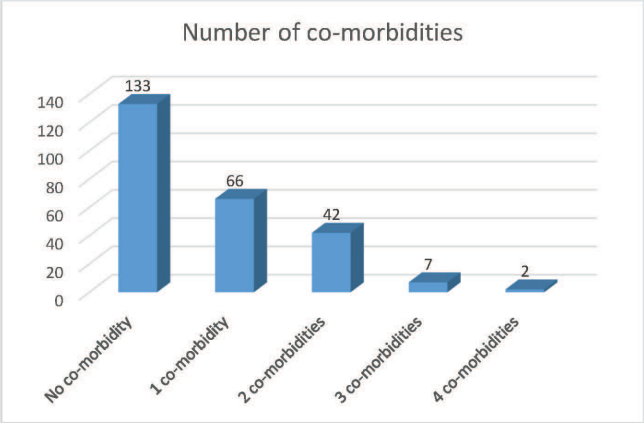


**Figure 4:** Simple bar diagram of number of co-morbidities wise distribution.

It is observed that participants with single morbidity are in a vast majority (92%). Only 7% are with two or more morbidities and 1% are with only co-morbidity/ies.

It is observed that 133 (53.2%) participants are having no any co-morbidity and 66 (26.4%) are having one co-morbidity and 42 (16.8%) are having two co-morbidities. Those who are having three or more co-morbidities are negligible i.e., 9 (3.6%), so 199 (79.6%) participants are having no or only one co-morbidity.

Average number of co-morbidities among participants is 0.716 with standard deviation of 0.9. The range is from zero to four with 95% confidence interval is 0.61 to 0.83.

In the tertiary health care institute, patients with less number of co-morbidities were randomly observed and this is a very significant finding.

54 (21.6%) of the participants have hypertension in tertiary health care institution. 95% confidence interval is 16.5% to 26.7%

**Table 5:** Distribution of participants as per hypertensive status.

| Status | Frequency | Proportion (%) |
|---|---|---|
| Hypertensive | 54 | 21.60 |
| Non-hypertensive | 196 | 78.40 |
| **Total** | **250** | **100.00** |

**Table 6**: Distribution of participants as per diabetic status.

| Status | Frequency | Proportion (%) |
|---|---|---|
| Diabetic | 33 | 13.20 |
| Non-diabetic | 217 | 86.80 |
| **Total** | **250** | **100.00** |

**Table 7:** Distribution of participants with Ischaemic heart disease.

| Status | Frequency | Percent (%) |
|---|---|---|
| Ischaemic Heart Disease | 5 | 2.00 |
| No Ischaemic Heart Disease | 245 | 98.00 |
| **Total** | **250** | **100.00** |

A total of 33 participants, accounting for 13.2%, were found to have diabetes mellitus within the tertiary healthcare institution. The 95% confidence interval ranges from 9.01% to 17.39%.

Additionally, in 5 participants 2% were diagnosed with ischemic heart disease, while 4 participants (1.6%) had bronchial asthma. Thyroid disease was present in 2 participants (0.8%), and 26 participants (10.4%) were affected by chronic kidney disease. Furthermore, 34 participants (13.6%) were identified as having some malignancy.

## Discussion

The study was carried out in a tertiary health care teaching institute in rural tribal block approximately four hours away by road from a metropolitan city. Among randomly taken sample, a very thin majority of participants had male gender and of more than or equal to 45 years of age. A vast majority (92%) of patients had a single morbidity and co-morbidities were not found in thin majority (53.2%) of patients. Among those who had co-morbidities, majority (56.41%) of patients had only single co-morbidity. Since the majority of the drainage area of the hospital is rural-tribal, the possibility of patients having either single morbidity and either no or only one co-morbidity was observed. Average number of co-morbidities was only 0.716 (0.61-0.83) which appears to be a very significant finding. In a study conducted in hospital from Lucknow city, out of 4511 admitted patients 44.4% were admitted due to infectious and parasitic diseases.[4] In another city of Thane, among 6818 admitted patients, 75.51% were due to communicable diseases.[5] Co-morbidities like hypertension and diabetes mellitus were found in greater proportion than ischaemic heart diseases, bronchial asthma, chronic kidney diseases, thyroid disorders and malignancies.

## Conclusion

In tertiary health care institute, vast majority (92%) of admitted patients had single morbidity and majority (53.2%) of patients had no co-morbidity.

## References


1. Park K. Park's Textbook of Preventive and Social Medicine, 27th Edition, Jabalpur, M/s Banarasidas Bhanot
2. Ahamed F, Ghosh T, Kaur A, Debnath A. Prevalence of chronic morbidities and healthcare seeking behavior among urban community dwelling elderly population residing in Kalyani Municipality area of West Bengal, India. J Family Med Prim Care. 2021 Nov;10(11):4193-4199. doi: 10.4103/jfmpc.jfmpc_893_21
3. C.R.Kothari, Research Methodology Methods & Techniques, 2nd Edition, Jaipur, Wishwa Prakashan
4. Chopra D., Manchanda S., Manchanda S., Jauhari N., A study of morbidity pattern in indoor patients in tertiary care hospitals in Lucknow, National Journal of Community Medicine 2017 [Cited 2024 August 31]. Available from: https://njcmindia.com/index.php/file/article/view/649
5. Kulkarni V.V., Gurav N.I., Yadav A.M., Samel D.R. (2024), Morbidity pattern of communicable diseases in a tertiary care hospital in metropolitan city of Western Maharashtra, International Journal of Community Medicine and Public Health, 11(4), 1650-1665. Doi: 10.18203/2394-6040.ijcmph20240905